

WHAT IS CLAIMED IS:

1. A metallic seal comprising:
a first annular end section having a first annular sealing surface facing in a first direction and lying in a first contact plane to contact a first member for creating a first annular sealing dam therebetween;
a second annular end section having a second annular sealing surface facing in a second direction that is opposite to said first axial direction, and lying in a second plane that is substantially parallel to said first contact plane to contact a second member for creating a second annular sealing dam therebetween; and
an annular center section extending between said first and second annular end sections to form a ring having a central passageway with a center longitudinal axis, said third annular section being frustoconically shaped with said first and second annular end sections being contiguously arranged at opposite ends of said annular center section such that sealing loads applied substantially perpendicularly on said first and second annular sealing surfaces primarily deform due to torsional stress of said metallic seal.
2. The metallic seal according to claim 1, wherein
said first and second directions of said first and second sealing surfaces are arranged substantially parallel to said center longitudinal axis.
3. The metallic seal according to claim 1, wherein
said first and second directions of said first and second sealing surfaces are arranged to face substantially radially relative to said center longitudinal axis.
4. The metallic seal according to claim 1, wherein
said first and second sealing surfaces are spaced apart by a first distance measured parallel to said center longitudinal axis that is substantially equal to a second distance measured perpendicular to said center longitudinal axis between said first and second sealing surfaces.
5. The metallic seal according to claim 1, wherein
said first and second sealing surfaces are convexly curved surfaces.

6. The metallic seal according to claim 5, wherein
said convexly curved surfaces extend through an arc of about 60°.

5 7. The metallic seal according to claim 6, wherein
said annular center section has a slope of about 45° with respect to said center
longitudinal axis.

10 8. The metallic seal according to claim 7, wherein
said first and second directions of said first and second sealing surfaces are
arranged substantially parallel to said center longitudinal axis.

15 9. The metallic seal according to claim 7, wherein
said first and second directions of said first and second sealing surfaces are
arranged to face substantially radially relative to said center longitudinal axis.

20 10. The metallic seal according to claim 7, wherein
said first and second sealing surfaces are spaced apart by a first distance
measured parallel to said center longitudinal axis that is substantially equal to a
second distance measured perpendicular to said center longitudinal axis between said
first and second sealing surfaces.

25 11. The metallic seal according to claim 1, wherein
said annular center section has a slope of about 45° with respect to said center
longitudinal axis.

12. The metallic seal according to claim 1, wherein
said seal is formed of a corrosion resistant alloy.

30 13. The metallic seal according to claim 1, wherein
said seal is formed of a material selected from the group of nickel based
alloys, copper based alloys, tin, aluminum based alloys and stainless steel.

14. The metallic seal according to claim 1, wherein
said first and second annular end sections have substantially identical cross
sectional profiles that are inverted.

5 15. The metallic seal according to claim 14, wherein
said first and second sealing surfaces are convexly curved surfaces.

16. The metallic seal according to claim 15, wherein
said convexly curved surfaces extend from a free end of said seal to said
10 annular center section.

17. The metallic seal according to claim 16, wherein
said annular center section has a slope of about 45° with respect to said center
longitudinal axis.

15 18. The metallic seal according to claim 17, wherein
said arcs of said convexly curved surfaces extend about 60° .

19. The metallic seal according to claim 17, wherein
20 said third annular section has a straight cross-sectional profile.